

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Atsushi HATABU

Title: TEMPLATE MATCHING METHOD, TEMPLATE MATCHING
APPARATUS, AND RECORDING MEDIUM THAT RECORDS
PROGRAM FOR IT

Appl. No.: 10/594,897

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Examiner: Fred H. Hu

Art Unit: 2624

Confirmation Number: 8320

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicant in order to comply with Applicant's duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR §1.56(b). Applicant does not waive any rights to take any action which would be

appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(c), before the mailing date of any of a final action under 37 CFR §1.113, a notice of allowance under 37 CFR §1.311, or an action that otherwise closes prosecution in the application.

RELEVANCE OF EACH DOCUMENT

The documents listed on the attached PTO/SB/08 were cited as being relevant during the prosecution of the corresponding Japanese application. A copy of the Japanese Office Action dated July 29, 2009 is attached. A partial English translation of the Japanese Office Actions follows:

Note (For cited literature, see the List of Cited Literature.)

Claims: 1 through 3, 6 through 9, 12 through 15, 18

Reasons: 1 through 3

Remarks:

(Claims 1, 7, and 13)

The claims have no inventive step due to Cited Literature 1 and 2.

Cited Literature 1 (paragraphs (0090) through (0093), Figures 17 through 19) describes a template matching method comprising a step in which a correlation value calculation unit 57 calculates the value of correlation value with a template image in template data 54 for each of several pixels (ST63) in an input image, a step in which the positions and values of peaks, which are the maximum correlation values, are estimated from the correlation values and coordinates in the vicinity of a pixel and the coordinates and correlation value of the pixel itself for the X-axis and the Y-axis (ST68), and a step in which the estimated peaks are recorded (ST70).

Comparing the invention described in Cited Literature 1 with the invention of this application, they differ in that the invention described in Cited Literature 1 deals with maximum values (peaks), whereas the invention of this application deals with “positions where the calculated values or estimated values of the degree of similarity are small.” However, a degree of similarity interpolation technique for finding the displacement where the degree of similarity is at its minimum value (at SAD or SSD) is described in Cited Literature 2 (see the “Background Art” section), and no particular difficulty is found in applying the abovementioned technology described in Cited Literature 2 to the template matching method described in Cited Literature 1. (Claims 2, 8, and 14)

The claims have no inventive step due to Cited Literature 1, 2, and 3.

Technology which records and reuses the previous correlation operations is described in Cited Literature 3 (see the section (Claim 1)). No particular difficulty is found in applying the technology for reusing correlation operations described in Cited Literature 3 to the template matching method described in Cited Literature 1.

(Claims 3, 9, and 15)

The claims have no inventive step due to Cited Literature 1 and 2.

Increasing speed by means of crude search methods is well known in the technical field of image matching (if necessary, see paragraphs (0008) through (0011) of Cited Literature 1). Moreover, the problem of increasing the speed of processing by combining multiple types of technology is an obvious pursuit of a person skilled in the art in the technical field of image processing. Therefore, no particular difficulty is found in applying further increases in speed from crude search methods to the template matching technology described in Cited Literature 1.

(Claims 6, 12, and 18)

The claims have no inventive step due to Cited Literature 1 and 2.

It is described in Cited Literature 1 that the peak position of the correlation value is estimated based on the intersection of a first straight line connecting the coordinates of $s_{\text{minus}1}$ and the coordinates of $s_{\text{minus}2}$, and a second straight line connecting the coordinates of s_0 and the coordinates of $s_{\text{plus}1}$ (see Fig. 9).

Therefore, the inventions of Claims 1 through 3, 6 through 9, 12 through 15, and 18 of this application could have been easily obtained by a person skilled in the art based on the inventions described in Cited Literature 1 through 3.

List of Cited Literature

1. Japanese Unexamined Patent Application Publication Number H07-129770
2. International Publication Number 2004/063991
3. Japanese Unexamined Patent Application Publication Number H11-088891

Record of Prior Art Literature Search Results

- Fields Searched IPC G06T7/00-7/60
- Prior Art Reference Japanese Unexamined Patent Application Publication Number H06-233282

This Record of Prior Art Literature Search Results does not constitute reasons for rejection.

Document A1 is a U.S. counterpart of Document A5.

Unless otherwise indicated, no English translation is readily available (not considering machine-generated translations that may be freely available online, to both the Applicant and the PTO) for each of the non-English language documents. However, a commercially available English language abstract is provided herewith, where indicated on the attached Form PTO/SB/08. Inasmuch as Applicants have endeavored to provide at least one item that complies with the requirement for a “concise explanation of relevance” for each of the non-English language documents, each of these documents has been submitted in compliance with the PTO requirements and should be considered by the Examiner (37 CFR §1.97, §1.98 and MPEP §609).

Applicant respectfully requests that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

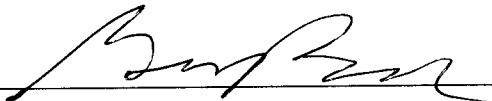
FEE

Fees in the amount of \$180.00 to cover the fee associated with an information disclosure statement under 37 CFR §1.97(c) are being paid by credit card via EFS-Web.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this submission under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by the credit card payment instructions in EFS-Web being incorrect or absent, resulting in a rejected or incorrect credit card transaction, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741.

Respectfully submitted,

Date January 15, 2010

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